NOTES ON THE DISTRIBUTION OF THE DINOSAUR ANT *NOTHOMYRMECIA MACROPS* CLARK (HYMENOPTERA: FORMICIDAE) IN SOUTH AUSTRALIA

C.H.S. WATTS, A.J. McARTHUR and R. FOSTER

South Australian Museum, North Terrace, Adelaide, SA 5000

Abstract

Nothomyrmecia macrops Clark, the only surviving member of the ant subfamily Nothomyrmeciinae and known previously from one restricted locality in South Australia and one site in Western Australia, is recorded from 17 additional localities over a linear distance of more than 400 km in northern Eyre Peninsula, South Australia. It appears to be a relatively common nocturnal species, active only on relatively cold nights in regions of mature mallee.

Introduction

Nothomyrmecia macrops Clark is the only surviving member of the ant subfamily Nothomyrmeciinae. It retains a large number of primitive morphological and behavioural features (Hölldobler and Taylor 1983) and hence has attracted the common name 'dinosaur ant' or 'living fossil ant'.

First recorded in 1934 from the vicinity of Esperance in Western Australia, it was not collected again until it was discovered at Poochera on Eyre Peninsula, South Australia in 1976 (Taylor 1978). Since then searches by Taylor and others have failed to locate additional colonies (R. W. Taylor, pers. comm.). The future of this phylogenetically isolated and hence scientifically important ant was in doubt.

Methods

During the spring and early summer of 1995, with some guidance from Dr R. W. Taylor, we conducted a search for additional colonies of *N. macrops* in the Upper Eyre Peninsula region of South Australia (Fig. 1).

Trials of various survey methods (beating, hand searching, the use of 'tanglefoot™', pitfall traps and baiting with honey) were undertaken on the known populations at Poochera. All of the above methods produced *N. macrops* except the use of pitfalls. Beating bushes and baiting tree trunks with honey proved equally effective. However, in terms of unit effort, baiting was clearly superior, being a rapid and easy technique capable of quickly surveying relatively large areas.

It may be indicative of the ant's behaviour that no specimens were caught in pitfall traps, although the traps were exposed for two months and were scattered among the mallee, often only a metre or two from trees on which the ant was observed climbing on most nights.

As previously demonstrated by Hölldobler and Taylor (1983), *N. macrops* is nocturnal and is generally active only at temperatures below about 15°C (although two individuals were caught on different nights at 20°C).

Based on our experiences at Poochera we adopted the following survey method. During the day we located likely patches of mallee scrub. In the late afternoon up to five sites, usually several kilometres apart, were baited by smearing honey bait on tree trunks around eye height whilst walking in a straight line or loop for twenty minutes, resulting in a bait trail of 200-500 m on 50-80 tree stems. Soon after dusk the bait line was visited and samples of any ants present collected. In general, sites were surveyed on only one night.

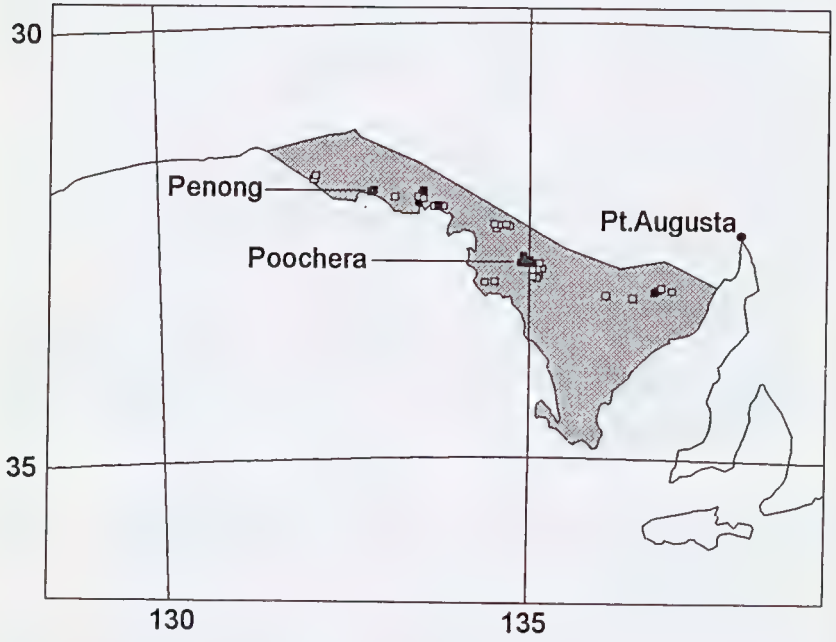

Fig. 1. Eyre peninsula (South Australia) survey sites for *Nothomyrmecia macrops*. Filled squares indicate sites where *N. macrops* was collected. Shaded area refers to open scrub woodland as given in Griffin and McCaskill 1986. (Because of the scale of the map not all sites are distinguished).

Results

Seventy-four separate sites were surveyed between Lake Gilles in the east and Nundroo in the west. *Nothomyrmecia macrops* was found at 17 sites in addition to the known sites at Poochera (Fig. 1). (More specific details of localities of sites surveyed are available from A. J. McArthur). Negative results do not, of course, necessarily imply that it was not present. This is particularly true for a species such as *N. macrops* which is known to be inactive on warm nights and to be erratic in activity even at low temperatures.

We did not attempt to measure the density of *N. macrops*, nor the geographic extent of the individual colonies we located. Our impression was that where it occurred it was in reasonable numbers, with 10-12 individuals at a bait station not unusual.

To the best of our ability in the time available, we attempted to describe in general terms each of the sites visited. *Nothomyrmecia macrops* appeared to be associated with sites characterised by the following: 'old growth' mallee, long unburnt with a mixture of tree sizes and at least a few large old trees; mallee dominated by *Eucalyptus oleosa, E. brachycalyx* and *E. gracilis* alone or more often in combination; loose, friable calcareous soils with a high 'fines' content; fairly bare ground with a thin, flat layer of litter and little understorey and a high diversity of ant species, but no dominant aggressive species.

Discussion

We found *N. macrops* to be easily surveyed using a dilute honey bait on cool (<18°C) nights. Using this technique we found *N. macrops* to be a relatively common species in areas of 'old growth' patchy mallee with sparse understorey and a thin litter layer on friable soil, between Lake Gilles and Penong on Eyre Peninsula, a distance of about 400 km. Within this area it occurred as a member of several ant assemblages. We expect that the distribution of the species will eventually be shown to be even greater. We see no reason to consider the species endangered as long as no further major clearing of mallee vegetation occurs. Remnant roadside mallee represents a significant proportion of its remaining habitat. The species occurs in the Lake Gilles Conservation Park and the Chadinga Conservation Reserve.

Acknowledgments

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References

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